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(New) A method for removing protozoa from water so as to render the water

suitable for human use or for use in swimming pools or spa pools, the method comprising

contacting the water with an uncoated alumina for a certain period of time and under conditions

such that protozoa in the water are absorbed onto the alumina so as to result in a 2 log reduction

$\beta^2$

in the number of protozoa present in the water, the uncoated alumina comprising a particle size

of about 15mm to about 0.05mm and a surface density of Al-OH groups at an average rate of

greater than about 1 hydroxyl group per  $10\text{nm}^2$  of surface area.

### REMARKS

#### Rejections under §112

The Action rejects claims 11-13 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention. Claims 11-13 have been cancelled in the above amendments thereby rendering this rejection moot. Applicants note, however, that these claims are cancelled without prejudice and Applicants expressly reserve the right to pursue any patentable subject matter that may have been included in cancelled claims 11-13 at a later time. Accordingly, Applicants respectfully request withdrawal of the rejection as to cancelled claims 11-13.

#### Rejections under §102

The Action also rejects claims 1, 2, 6-8 and 11-13 under 35 U.S.C. §102(b) as being anticipated by Mehkeri et al.(U.S. Patent No. 5,512, 491). Claims 11-13 have been cancelled in the above amendments thereby rendering this rejection moot. Applicants note, however, that these claims are cancelled without prejudice and Applicants expressly reserve the right to pursue any patentable

subject matter that may have been included in cancelled claims 11-13 at a later time. Accordingly, Applicants respectfully request withdrawal of the rejection as to cancelled claims 11-13.

As for claims 1, 2, and 6-8, Applicants respectfully traverse this rejection because Mehkeri does not teach, suggest, or disclose every element of amended independent claim 1. In order for independent claim 1 to be anticipated by Mehkeri, Mehkeri must teach each and every element as set forth in the claim (see MPEP § 2131). Moreover, Mehkeri must teach the identical invention in as much detail as is contained in independent claim 1 (see MPEP § 2131).

The Action states that Mehkeri does in fact teach all limitations of independent claim 1; however, amended independent claim 1 requires the use of "*an uncoated aluminium based medium which contains surface Al-OH groups . . . .*" Support for this limitation can be found on page 8, line 25 to page 9, line 10, where various methods are disclosed for introducing surface Al-OH groups. None of these methods include coating. Mehkeri, on the other hand, does not teach the use uncoated aluminum based material as required by amended independent claim 1. Rather, Mehkeri teaches using material that has been coated with "freshly prepared aluminum hydroxide." Thus, Mehkeri does not teach each and every element of independent claim 1.

Moreover, the present application is directed to methods for removing a sufficient amount biological pathogens so that the water is fit for human use or activity (see background) Amended independent claim 1, therefore, requires that the biological pathogens be removed in an amount sufficient "*to make the water fit for human use or activity.*" Support for this limitation can be found throughout the specification. Specifically, however, page 8, lines 5-12 provide exemplary contact times sufficient to reduce the amount of biological pathogens to an acceptable level. Mehkeri, on the other hand, does not teach, suggest, or disclose removing an amount of biological pathogens sufficient to make the water fit for human use or activity. Rather, Mehkeri is directed to methods for trapping

analytes for subsequent extraction and analysis (see Summary). Accordingly, Mehkeri et al. would be unconcerned with the amount of pathogens actually removed, as long as an amount sufficient for the subsequent analysis are trapped.

Accordingly, Applicants respectfully request withdrawal of the reject as to amended independent claim 1, because Mehkeri fails to teach, suggest, or disclose every element of amended independent claim 1. Applicants also request withdrawal of the rejection as to claims 2 and 6-8, because they depend from independent claim 1, which is itself allowable over Mehkeri.

#### Rejections under §103

The Action also rejects claims 3-5, 9 and 10 under 35 U.S.C. §103(a) as being obvious in light of Mehkeri. First, Applicants respectfully request withdrawal of the rejection as to these claims, because these claims depend from independent claim 1, which as explained above is allowable over Mehkeri. Additionally, Applicants respectfully traverse this rejection because Mehkeri fails to teach suggest or disclose every element of claims 3-5, 9 and 10.

In order to sustain a *prima facie* case of obviousness, Mehkeri must teach or suggest every claim limitation and also a reasonable expectation that the claimed combination will be successful (see MPEP §2141.03). The Action states that Mehkeri does not, in fact, teach the surface density limitation as claimed in claims 3-5 or the particle size limitations as claimed in claims 9 and 10. Nonetheless, the Action states that Mehkeri renders the claims obvious, because the exact surface density and particle size do not materially effect the overall result of the reference process. Applicants disagree. The surface density and particle size are important to ensuring that a sufficient amount of biological pathogens are removed from the treated water (see, e.g., page 8, lines 14-24). Therefore, the limitations of these claims are not trivial.

As stated in the Action, Mehkeri does not teach the limitations of claims 3-5, 9, and 10. Nor is there any indication in Mehkeri that use of the surface densities and/or particle sizes claimed in claims 3-5, 9 and 10 would produce sufficient removal of biological pathogens from water treated in accordance with the teachings of the present application. Accordingly, Mehkeri cannot render claims 3-5, 9 and 10 obvious and Applicants, again, respectfully request that the rejection as to these claims be withdrawn.

New Claim

New claim 14 has been added by the above amendment. Applicants believe that the claim is fully supported by the specification and that the claim is in condition for allowance. No new matter is believed to have been added by the addition of this claim.

### CONCLUSION

Based on the above amendments and remarks, Applicants believe that the application is now in condition for allowance and such is respectfully requested. Claims 1-13 were pending in the application of which claim 1 was an independent claim and claims 3, 6, and 8 were multiple dependent claims. Thus, there were 13 total claims, 1 independent claim, 9 dependent claims, and 3 multiple dependent claims. After the above amendments claims 1-10 and 14 are still pending, of which claims 1 and 14 are independent and claims 3, 6, and 9 are multiple dependent claims. Thus, there are now 11 total claims, 2 independent claims, 6 dependent claims, and 3 multiple dependent claims pending in the action. Because there is an overall reduction in the number of claims pending, and the original filing fee covered up to 3 independent claims, no additional claim fees are believed due. This Response is being filed within 6 months of the mailing date of the Action. Therefore, a 3 month extension fee is due and is included herewith.

The Commissioner is, however, hereby authorized to charge any fees required by this response, and not covered by the amount included, to our Deposit Account No. 50-1273 (Order No. 029218.0003.UTL).

Respectfully submitted,

Dated: 01/08/03  
BROBECK, PHLEGER & HARRISON LLP  
12390 El Camino Real Reg. No.: 47,596  
San Diego, CA 92130-2081  
Telephone: (858) 720-2500  
Facsimile: (858) 720-2555

By:   
Noel C. Gillespie

APPENDIX A  
MARKED-CLAIMS

1. (Amended) Method for the removal of biological species from water comprising the steps of contacting the water with an uncoated aluminium based medium which contains surface Al-OH groups for a time and under conditions such that a proportion of the biological species present in the water are absorbed onto said medium and removed from the water in a sufficient amount to make the water fit for human use or activity.